Zoe Krauss

Ph.D Candidate, University of Washington

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EDUCATION

Ph.D. University of Washington, School of Oceanography — *Anticipated 2025*
Marine Geology & Geophysics; Advisor: William S. D. Wilcock

M.S. University of Washington, School of Oceanography — 2021

B.A. Colorado College — 2019
Physics major: Geophysics emphasis; Magna cum laude, Phi Beta Kappa

PUBLICATIONS

Krauss, Z., Wilcock, W.S., & Baillard, C. (in prep). A single-station earthquake catalog for the Endeavour segment of the Juan de Fuca ridge (2011-2016): challenges and implications for the spreading cycle.

Evans, G., **Krauss, Z.,** Lilley, M., Seyfried Jr., W., Wilcock, W.S.D. (in prep). Tectonically Induced Changes in Vent Fluid Compositions and Metal Concentrations at Main Endeavour Field, Northeast Pacific Ocean.

Krauss, Z., Ni, Y., Henderson, S., & Denolle, M. (2023). Seismology in the cloud: guidance for the individual researcher. Seismica, 2(2). https://doi.org/10.26443/seismica.v2i2.979.

Krauss, Z., Wilcock, W. S., Heesemann, M., Schlesinger, A., Kukovica, J., & Farrugia, J. J. (2023). A Long-Term Earthquake Catalog for the Endeavour Segment: Constraints on the Extensional Cycle and Evidence for Hydrothermal Venting Supported by Propagating Rifts. Journal of Geophysical Research: Solid Earth, 128(2), e2022JB025662.

Krauss, Z., & Menke, W. (2020). The Northern Gulf Anomaly: P-and S-wave travel time delays illuminate a strong thermal feature beneath the Northern Gulf of Mexico. Earth and Planetary Science Letters, 534, 116102.

Almendros, J., **et al**. (2020). BRAVOSEIS: Geophysical investigation of rifting and volcanism in the Bransfield strait, Antarctica. Journal of South American Earth Sciences 104: 102834.

Borella, J., Quigley, M., **Krauss, Z.,** Lincoln, K., Attanayake, J., Stamp, L., Lanman, H., Levine, S., Hampton, S. & Gravley, D. (2019). Geologic and geomorphic controls on rockfall hazard: how well do past rockfalls predict future distributions?. Natural Hazards and Earth System Sciences, 19(10), 2249-2280.

WHITE PAPERS

Krauss, Z., Eilon, Z., Parnell-Turner, R., Janiszewski, H., Worthington, L., Kidiwela, M., & Brunsvik., B. (2021) Call to expand ocean bottom seismograph (OBS) facilities and instrument pool for ambitious Rift2Ridge science. 2021 Rift2Ridge Workshop.

INVITED TALKS

InterRidge Webinar Series, 2024 (seminar)
Near-real-time Seismic Monitoring of a Mid-ocean Ridge.
AGU Fall Meeting, San Francisco, CA, 2023 (talk)
Near-real-time Seismic Monitoring of Tectonically-Influenced Mid-ocean Ridge Hydrothermal Vent Fields.

SEMINAR TALKS

Slow slip in shallow Cascadia: looking for tremor on ocean bottom seismometers. Marine Geology and Geophysics Seminar, University of Washington. (2023)
Long-term seismic data unlocks the story of a mid-ocean ridge. Ocean Networks Canada Lunch and Learn, general audience. (2023)
Long-term and real-time seismic monitoring of a mid-ocean ridge. Pacific Geoscience Center-University of Victoria Seminar. (2023)
Machine-learning-based detection of offshore earthquakes. Data Science Seminar, University of Washington. (2022)
Building and interpreting an earthquake catalog for the Endeavour segment. Seismolunch Seminar and the Marine Geology and Geophysics Seminar, University of Washington, virtual. (2021)
Deep structure of the Northern Gulf of Mexico from Seismic Data. USGS Menlo Park and Stanford Reading Group, virtual. (Invited, 2021)

AWARDS

AGU Outstanding Student Presentation Award (OSPA) 2023
NDSEG Conference Exemplary Poster Award 2022
AGU Outstanding Student Presentation Award (OSPA) 2021
National Defense Science and Engineering Fellowship (NDSEG) 2020
Full tuition and annual $38,000 stipend support for 3 years
Travel allowance of $5,000
NSF Graduate Research Fellowship 2020
Declined in favor of the NDSEG
ARCS Fellowship, University of Washington 2019
$17,500 of additional support over 3 years
NSF Graduate Research Fellowship, Honorable Mention 2019
Association of Women Geoscientists Outstanding Student Award 2019
Cowperthwaite Award for Excellence in Physics 2019
Awarded by the Colorado College Physics Department

ADDITIONAL CONFERENCE PRESENTATIONS

AGU Fall Meeting, San Francisco, CA (poster) 2023
Offshore Seismic Signals of Deformation in the Shallow Cascadia Subduction Zone
SSA Annual Meeting, San Juan, PR (poster) 2023
Constructing Cloud Resources for the Individual Researcher From the Ground Up: An Example of Earthquake Detection in the Cloud
AGU Fall Meeting, Chicago, IL (poster) 2022
Investigating microearthquake multiplets using ocean bottom seismometers in a mid-ocean ridge hydrothermal field
NDSEG Fellows Conference, Boston, MA (poster and talk) 2022

Using real-time offshore seismic observations to understand the seafloor spreading cycle

SSA Annual Meeting, Bellevue, WA (poster) 2022

Long-term Earthquake Catalog for the Endeavour Segment of the Juan De Fuca Ridge Highlights the Influence of Propagating Rifts on Hydrothermal Venting

AGU Fall Meeting, virtual (talk) 2021

Long-term earthquake patterns at the Endeavour Segment, Juan de Fuca Ridge

Rift2Ridge Workshop, virtual (lightning talk) 2021

Lessons from multiple decades of observations on the Endeavour Segment

Marine Seismology Symposium, virtual (live short talk) 2021

Building a Multidecadal Microearthquake Catalog for the Endeavour Segment of the Juan de Fuca Ridge

COMPUTATIONAL EXPERIENCE

Proficient in Python and Matlab
Experience with cloud computing (Azure), Git, Linux systems

& SUPPORT

University of Washington Azure Cloud Support 2023
$5,000 of Azure cloud computing credits to use toward the documentation of time and cost scaling of seismic workflows.

University of Washington eScience Cloud ReproHack Week 2022
Chosen to work alongside Microsoft Azure cloud computing experts to migrate local workflows onto the cloud.

University of Washington Azure Cloud Support 2022
$20,000 of Azure cloud computing credits to use towards the creation of earthquake catalogs using machine learning.

University of Washington eScience Incubator Program 2022
Accepted to work one-on-one with a professional data scientist for 10 weeks to create a machine-learning-based earthquake catalog curation workflow using cloud computing resources.

ADDITIONAL ATTENDED MEETINGS

USGS Cascadia Subduction Zone Science Meeting, Seattle, WA 2023
SZ4D Community Meeting, Houston, TX 2022
USGS Cascadia Subduction Zone Science Meeting, Seattle, WA 2020

TEACHING AND MENTORSHIP

OCEAN 320: Coastal Oceanography 2023
Teaching assistant, University of Washington
Co-led lab sessions, including some in Python
Led office hours

Data Science in Oceanography Summer Program 2022
Mentor, University of Washington
Prepared and led Python tutorials on introductory seismic analysis
Gave introductory lecture to Marine Geology and Geophysics
Served as mentor for an undergraduate project

OCEAN 201: Intro to Oceanography Lab 2021

Teaching assistant, University of Washington, virtual due to COVID
- Prepared lab experiments and reports
- Graded ~40 lab reports per week
- Co-led synchronous lab sessions

FIELD EXPERIENCE

OBS redeployment at Axial Seamount, R/V Sally Ride	2023
OBS deployment at Axial Seamount, R/V Langseth*	2022
*Missed due to COVID emergency	
DAS deployment on OOI cabled network, Pacific City, OR	2021
OBS retrieval at Bransfield Strait, Antarctica, R/V Hesperides	2020
Frontiers Abroad geology field camp, New Zealand	2017